



Australian Bureau of Statistics

1350.0 - Australian Economic Indicators, Jun 2002

ARCHIVED ISSUE Released at 11:30 AM (CANBERRA TIME) 31/05/2002

Special Article - Updating the Experimental Composite Leading Indicator of the Australian Business Cycle: March Quarter 2002

This article was published in **Australian Economic Indicators** (Cat. No. 1350.0), June 2002

BACKGROUND

The ABS Experimental Composite Leading Indicator (XCLI) is a single time series designed to provide early signals of turning points in the Australian business cycle. It does not predict the level of GDP or signal recessions or recoveries.

The XCLI has been developed to supplement rather than to compete with existing forms of economic analysis and forecasting. It is published each quarter in Australian Economic Indicators (in the March, June, September and December issues).

RECENT PERFORMANCE

Past performance of the XCLI shows it led turning points in the business cycle by between one and six quarters, with the average being around two quarters. However the XCLI has not been performing well recently, with the lead time between movements in the XCLI, and the GDP business cycle steadily declining (See page 5 for more details). The ABS is currently reviewing the XCLI. More details on this review can be found on page 12.

MOST RECENT MOVEMENTS

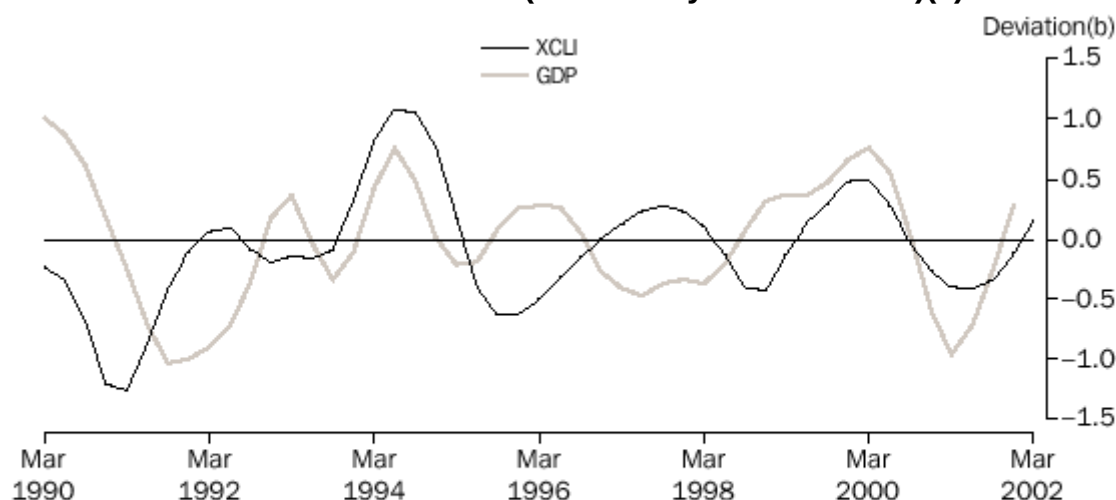
In the March quarter 2002, the XCLI rose for the third quarter (up 0.26 to 0.16). It showed a provisional XCLI turning point at June quarter 2001. Based on historical performance a trough in the GDP business cycle may be expected to emerge several quarters later. However, the GDP business cycle is also exhibiting a trough in March quarter 2001.

In the March quarter 2002, the series that gave the largest positive contributions were the trade factor and production expectations (0.09 each) while the only negative contribution to the change in the XCLI came from the housing finance commitments series (-0.04).

The growth in GDP trend slowed continually from the December quarter 1999 (when it grew by 1.1%) to the December quarter 2000 (0.1%). Since December quarter 2000 GDP has grown for four consecutive quarters at an increasing rate, with growth of 1.2% in the September Quarter 2001 and December quarter 2001. The growth of the historical long-term trend was 0.6% in the December quarter 2001.

1. EXPERIMENTAL COMPOSITE LEADING INDICATOR (XCLI) AND ITS TARGET, THE BUSINESS CYCLE IN GDP-

Chain volume measure (reference year 1999-2000)(a)



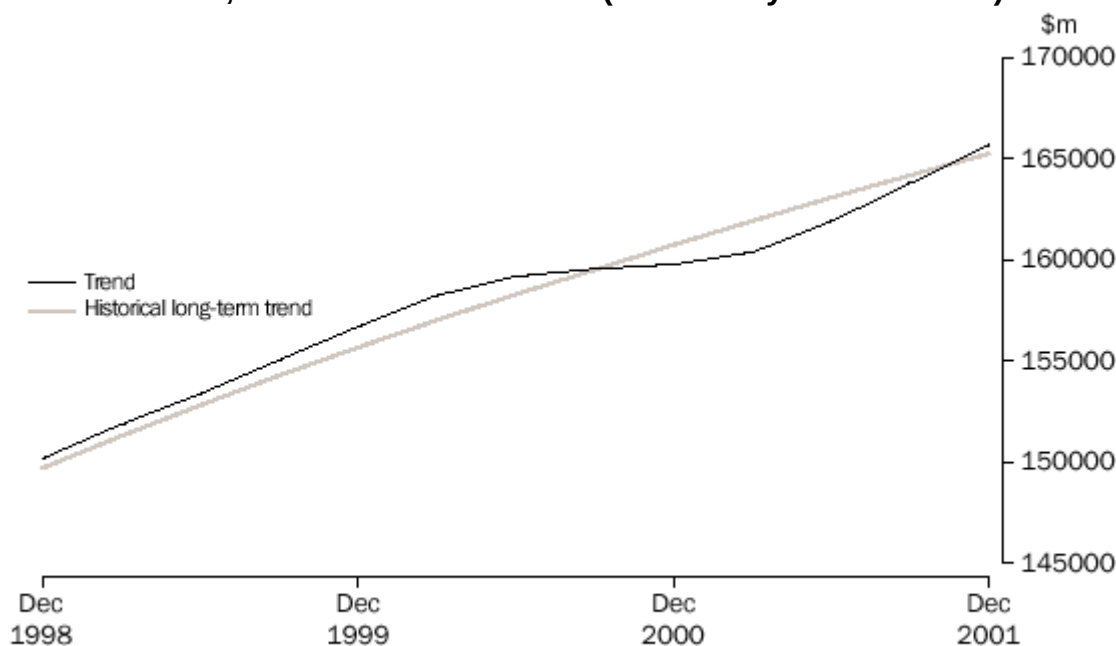
(a) In the December quarter 2001, the historical long-term trend growth rate of GDP is 0.63% and the trend growth rate is 1.16%.

(b) Deviation is the unit of measure for the GDP series and it refers to the deviation of trend from its historical long-term trend. The XCLI series has no official unit of measure, ie it is dimensionless. (see Endnote).

THE REFERENCE SERIES, GDP

The reference or target series for the XCLI is the GDP business cycle in Australia. The business cycle of a series is defined as the deviation between the trend and the historical long-term trend in the series. Graph 1 shows the business cycles in GDP and the XCLI. Graph 2 shows the level of trend GDP compared with its historical long-term trend. When the trend is below the historical long-term trend the GDP business cycle shown in Graph 1 is negative.

2. GDP, Chain volume measure (reference year 1999-2000)



Source: ABS (Cat. no. 5206.0), Quarterly data

Table 1: XCLI and GDP Chain volume measure (reference year 1999-2000)

	Dec 2000	Mar 2001	Jun 2001	Sep 2001	Dec 2001	Mar 2002
Level						
XCLI	-0.26	-0.39	-0.41	-0.34	-0.11	0.16
GDP Trend (\$m)	159751	160364	161899	163777	165685	n.a.
GDP Long-term trend (\$m)	160722	161913	163056	164173	165204	n.a.
GDP Business cycle	-0.60	-0.96	-0.71	-0.24	0.29	n.a.
Movement from previous quarter						
XCLI (change)	-0.24	-0.13	-0.01	0.07	0.24	0.27
GDP Trend (% change)	0.13	0.38	0.96	1.16	1.16	n.a.
GDP Long-term trend (% change)	0.76	0.74	0.71	0.69	0.63	n.a.
GDP Business cycle (change)	-0.62	-0.35	0.25	0.47	0.53	n.a.

Table 2: Contributions to quarterly changes in the XCLI

	Dec 2000	Mar 2001	Jun 2001	Sep 2001	Dec 2001	Mar 2002
Trade factor	-0.02	0.02	0.04	0.03	0.07	0.09
United States GDP	-0.03	-0.08	-0.12	-0.09	-0.04	0.01
Housing Finance Commitments	0.00	0.13	0.16	0.08	0.00	-0.04
Job Vacancies	-0.06	-0.11	-0.12	-0.05	-0.01	0.01
All Industrials Index	0.00	-0.03	0.00	-0.05	-0.04	0.03
Real interest rate (inverse lagged four quarters)	-0.03	0.01	0.04	0.09	0.12	0.07
Production expectations (lagged one quarter)	-0.07	-0.08	-0.07	0.01	0.10	0.09
Business expectations (lagged one quarter)	-0.04	0.01	0.06	0.04	0.03	0.00
Total XCLI, change from previous quarter	-0.24	-0.13	-0.01	0.07	0.23	0.26

THINGS THE XCLI HAS HAD TROUBLE PREDICTING

In the December quarter 1995, there was a peak in the business cycle which the XCLI failed to predict. This peak was largely attributable to the effects of a good farm season. The XCLI does not contain an indicator which leads first order farm product effects. In recognition of this, Graph 3 presents an alternative target series, namely, the business cycle of non-farm GDP, chain volume measure.

The XCLI peaked in the March quarter 2000. Based on historical performance, the non-farm GDP business cycle may have been expected to peak two quarters later. However, the non-farm GDP business cycle also peaked in the March quarter 2000.

The XCLI has been experiencing a decline in the lead time of predicting turning points in the GDP Business cycle. The past four turning points in the Business cycle have been predicted by the XCLI but the lead time to the corresponding turning point in the business cycle has been

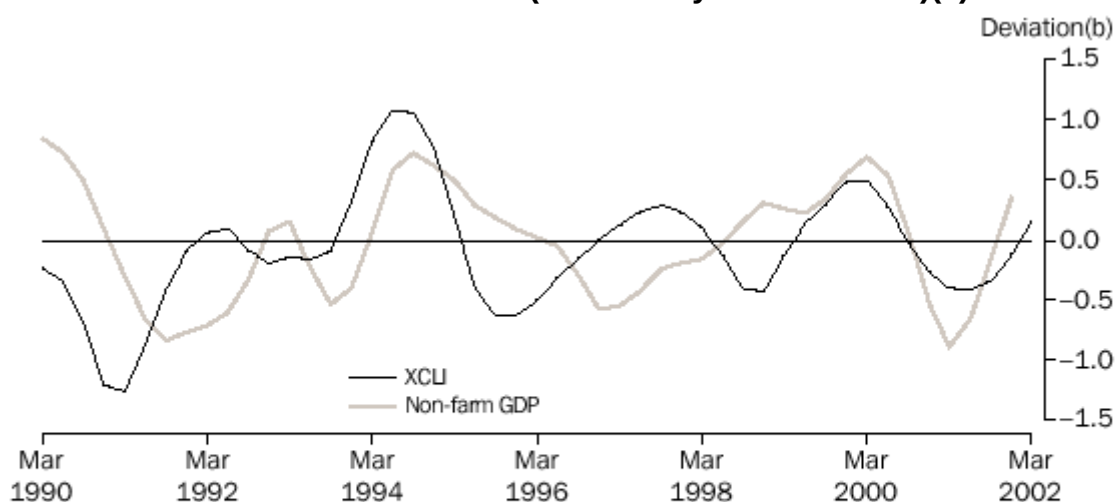
decreasing.

Turning point predicted in XCLI	Sept 1997	Peak	March 1999	March 2000	June 2001
		Trough		Peak	Trough
Lead time to corresponding turning point in the Business Cycle (in quarters)	5 - 6	0 - 1	0 - 1	-1 - 0	

The Lead times vary slightly as revisions to National Accounts move the turning point in the GDP Business cycle slightly.

3. EXPERIMENTAL COMPOSITE LEADING INDICATOR (XCLI) AND, THE BUSINESS CYCLE IN NON-FARM GDP

Chain volume measure (reference year 1999-2000)(a)



(a) In the December quarter 2001, the historical long-term trend growth rate of non-farm GDP is 0.65% while the trend growth rate is 1.17%.

(b) Deviation is the unit of measure for the GDP series and it refers to the deviation of trend from its historical long-term trend. The XCLI series has no official unit of measure, ie it is dimensionless (see Endnote).

ANALYSIS OF COMPONENT INDICATORS

The XCLI summarises the business cycles present in a selection of economic indicators which had typically shown turning points ahead of the business cycle in GDP from the early 1970s to the early 1990s. Because the evolution of each expansion and contraction in activity presents a unique combination of features, none of the individual component indicators has had an unvarying or perfectly stable leading relationship with GDP. However, when combined to form the XCLI their performance as a group is more stable.

In the March quarter 2002, four of the eight components made positive contributions to the quarterly change in the XCLI, three made negligible contributions and one made a negative contribution (Table 2 and Graph 4). The XCLI has risen from the previous quarter. Graphs 5 to 12 show each component's trend and historical long-term trend.

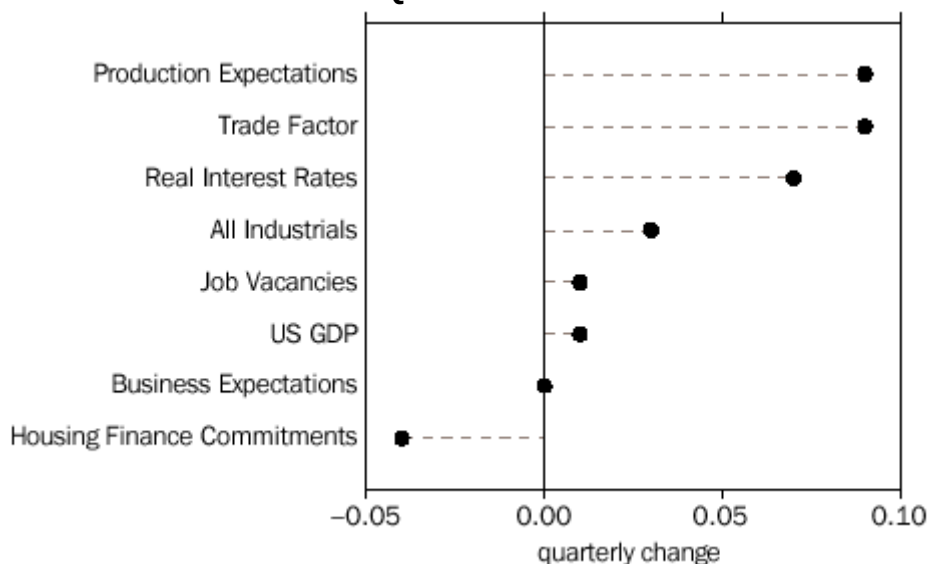
Positive contributions. The components making significant positive contributions to the quarterly change in the March quarter 2002 XCLI were trade factor (0.09, Graph 5), production expectations (0.09, Graph 11), the real interest rate component (0.07, Graph 10) and the All

Industrials Index (0.03, Graph 9).

Negative contributions. The only component making a negative contribution to the quarterly change in the March quarter 2002 XCLI was the housing finance commitments (-0.04, Graph 7).

US GDP (0.01, Graph 6), Job Vacancies (0.01, Graph 8) and business expectations (0.00, Graph 12) all made negligible contributions.

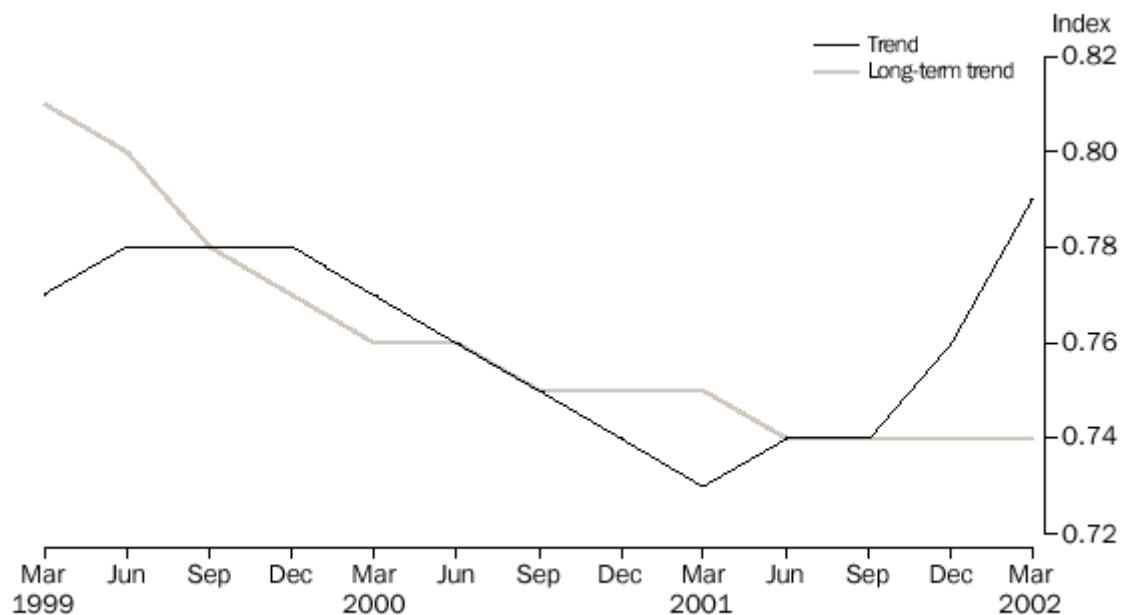
4. CONTRIBUTIONS TO QUARTERLY CHANGES IN THE XCLI



Trade Factor

The trade factor is defined as the ratio between commodity prices in terms of Special Drawing Rights and the price index for imported materials used by Australian producers. This ratio gives an early indication of changes in the terms of trade. The trend of the trade factor has risen for the latest five quarters, while the long-term trend's decline has stopped. The trade factor component made a positive contribution (0.09) to the change in the XCLI in the March quarter 2002. If the trend series rises again in the June quarter then the long-term trend series will also begin to rise.

5. TRADE FACTOR

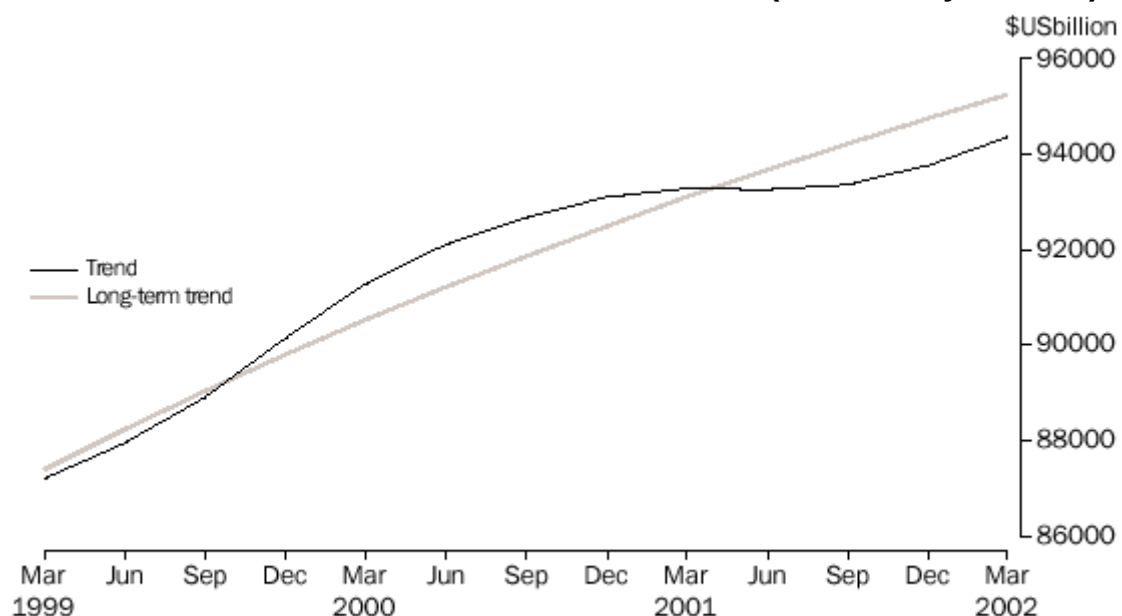


Source: ABS (Cat. no. 6411.0) and RBA Bulletin.

United States GDP

The US GDP component made a negligible contribution (0.01) to the change in the XCLI in the March quarter 2002 following six quarters of negative contributions. The trend of the United States GDP grew in the March quarter following growth in the September and December Quarters. The rate of growth of the long term trend has decelerated since the March quarter 1998 and the trend of the US GDP fell below its long-term trend in the March quarter 2001.

6. UNITED STATES GDP, Chain volume measure (Reference year 1996)



Source: US Bureau of Economic Analysis.

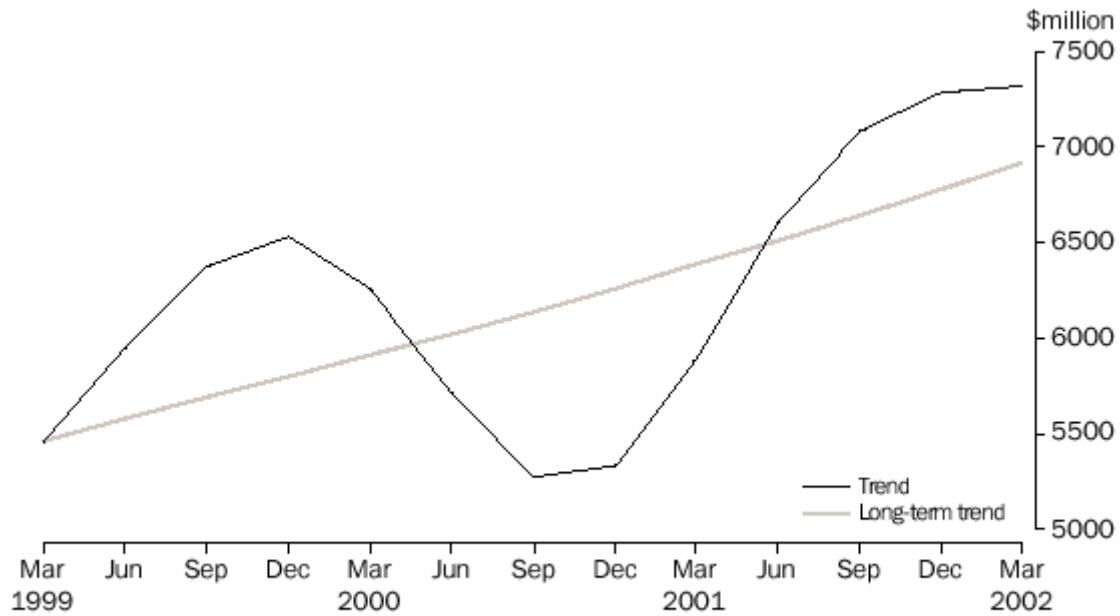
Secured housing finance commitments

The trend of the secured housing finance commitments rose slightly in the March quarter 2002.

The historical long-term trend for secured housing finance commitments also continued to rise.

Since the long-term trend grew faster than its trend in the March quarter 2002, the secured housing finance commitments component contributed negatively (-0.04) to the change in the XCLI in the current quarter. This negative contribution follows five successive quarters of positive contribution to the series.

7. SECURED HOUSING FINANCE COMMITMENTS



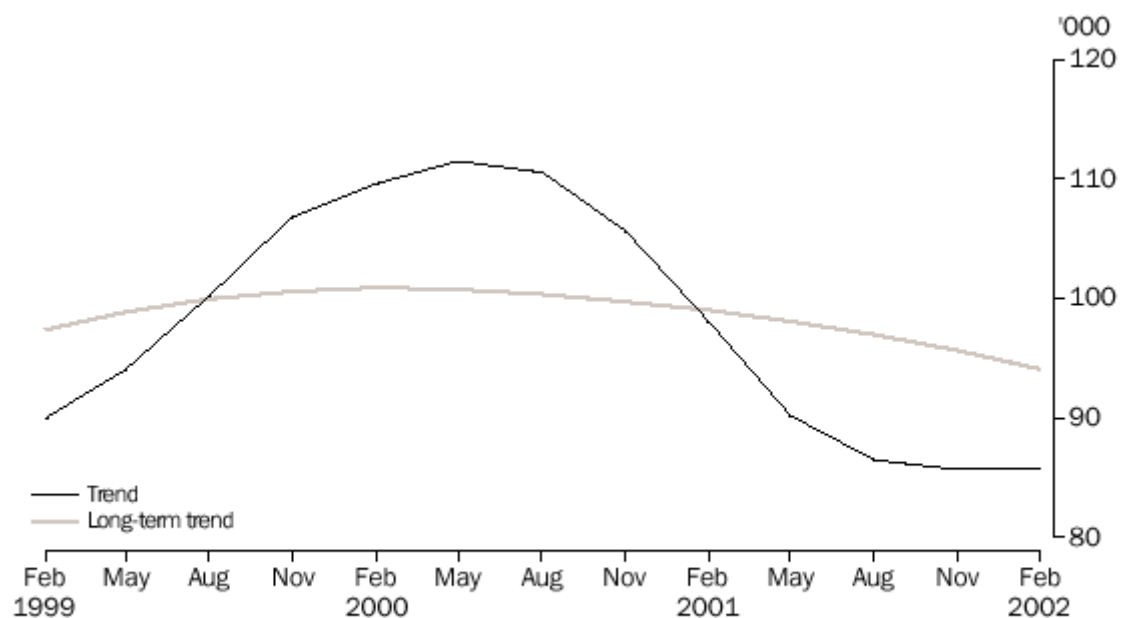
Source: ABS (Cat. no. 5671.0).

Job Vacancies

Note that the job vacancies series are referenced to the middle month of a quarter.

The job vacancies trend rose slightly in February 2002 following a decline of six quarters. Although the trend rose, it is still below the long-term trend, which itself has been declining since August 2000. As a consequence job vacancies made a negligible contribution (0.01) to the change in the XCLI in the March quarter 2002.

8. JOB VACANCIES

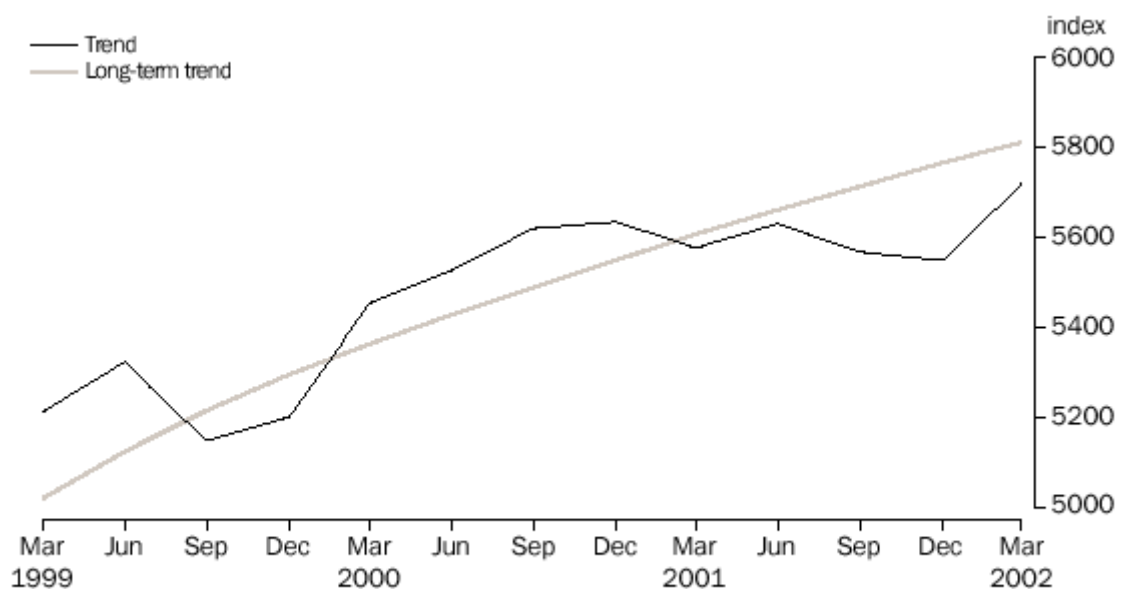


Source: ABS (Cat. no. 6354.0).

All Industrials index

In the March quarter 2002, the trend of the All Industrials Index rose and its long-term trend also rose, but more slowly. Accordingly, the All Industrials Index made a positive contribution (0.03) to the change in the XCLI in the March quarter 2002.

9. ALL INDUSTRIALS INDEX



Source: Australian Stock Exchange.

Real interest rate

Note: The real interest rate is defined as the difference between nominal interest rates and the change in the domestic final demand chain price index.

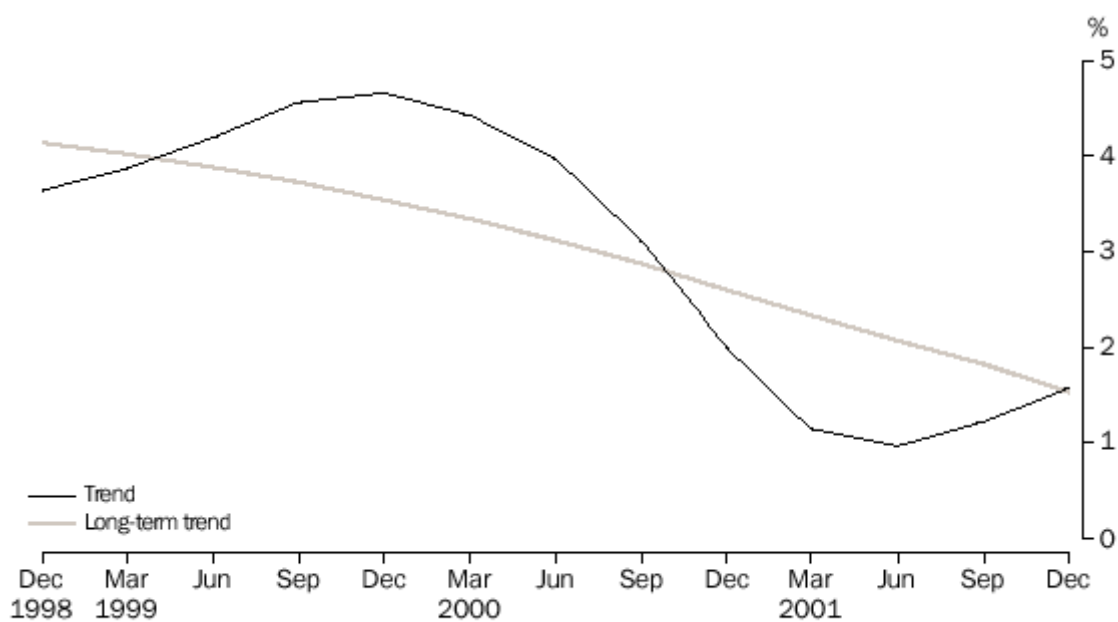
The XCLI uses the inverse of the business cycle in the real interest rate, lagged four quarters.

Therefore, it is the March quarter 2001 movement of the real interest rate that contributes to the March quarter 2002 movement in the XCLI. The real interest rate component made a positive contribution (0.08) to the change in the XCLI in the March quarter 2002. This is the fifth quarter of positive contribution to the XCLI.

The trend of the real interest rate rose in the December quarter 2001 following a rise in the September Quarter 2001. The long-term trend continued to decline over the period.

It is the movement in the March quarter 2001 that contributes to the March 2002 XCLI, hence the fall in the June quarter 2001 at a rate below the long term trend, means the real interest rate component should make a negative contribution to the change in the XCLI through to the June quarter 2002.

10. REAL INTEREST RATE



Source: ABS (Cat. no. 5206.0) and Treasury.

Production and business expectations

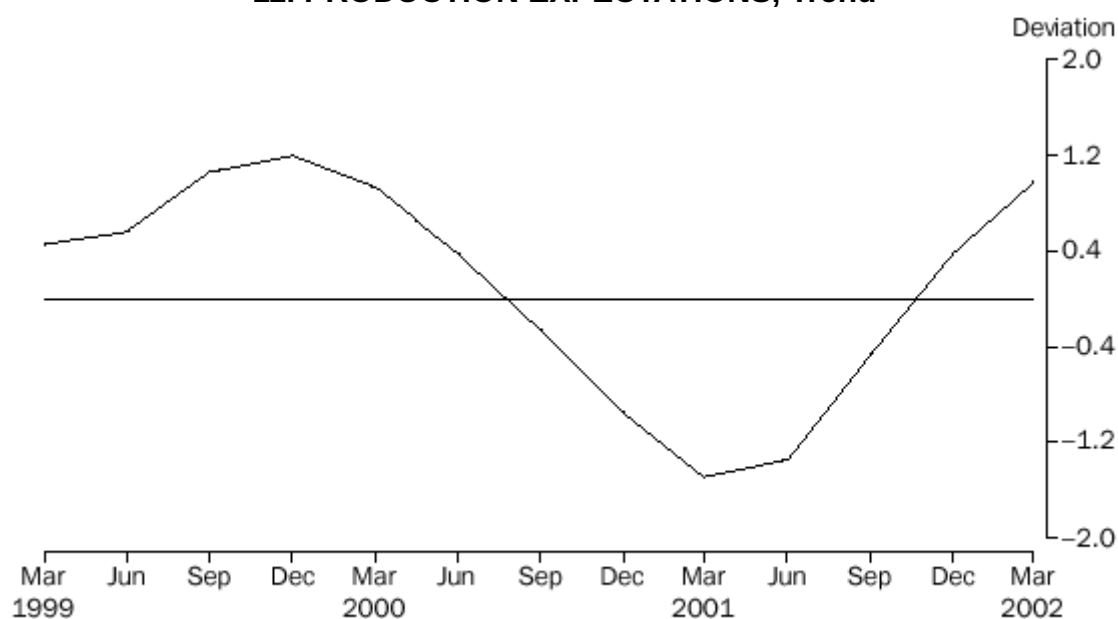
Note: These components are lagged one quarter in the compilation of the XCLI. Like other XCLI components, the production expectations and business expectations series have been smoothed and standardised to display cyclical behaviour. However, these series are not considered to exhibit long-term trend growth.

In the March quarter 2002, the trend of production expectations rose for the fourth consecutive quarter. According to the Survey of Industrial Trends (produced by ACCI and Westpac Banking Corporation), production expectations in original terms were up strongly in March quarter 2002. Because this component is lagged one quarter, it was the rise in the December quarter 2001 that made a positive contribution in the change in the XCLI in the March quarter 2002 (0.09). This component is expected to also make a positive contribution for the June quarter 2002.

In the March quarter 2002, the trend of business expectations rose. This rise follows rises in the previous four quarters. According to the March quarter 2002 Survey of Industrial Trends there was a rise in business expectations in original terms. Because this component is lagged, it was the increase in business expectations in the December quarter 2002 that made a positive contribution to the change in the XCLI in the March quarter 2002.

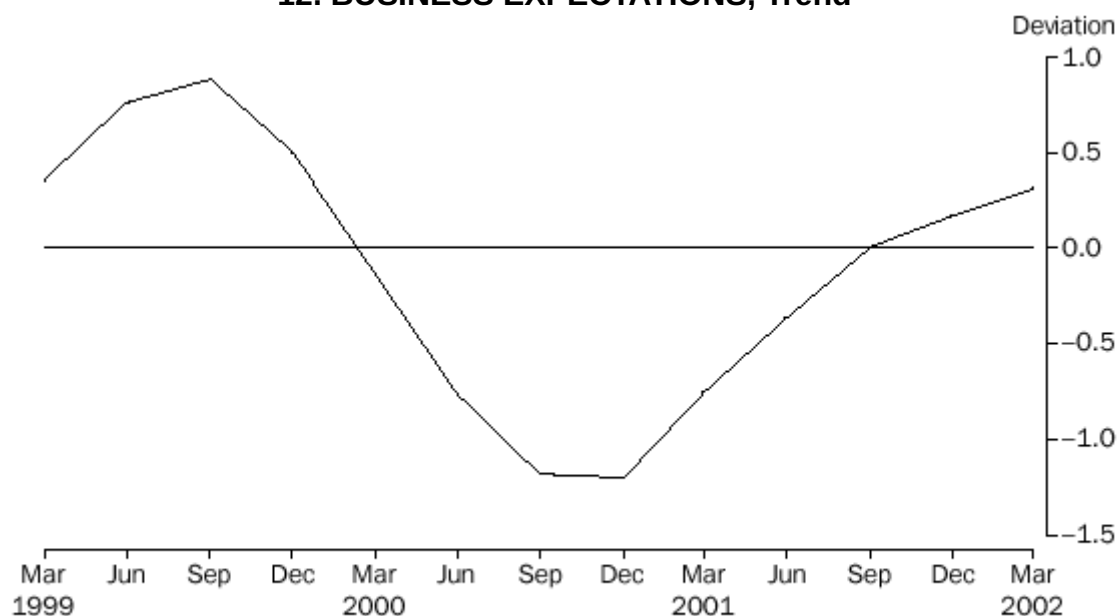
Note: The source of these expectations series is the Australian Chamber of Commerce and Industry, and Westpac Banking Corporation, Survey of Industrial Trends. The ABS is currently reviewing the components of the XCLI and the desirability of using the business expectations data collected by the ABS.

11. PRODUCTION EXPECTATIONS, Trend



Source: ACCI and Westpac Banking Corporation, 'Survey of Industrial Trends'.

12. BUSINESS EXPECTATIONS, Trend



Source: ACCI and Westpac Banking Corporation, 'Survey of Industrial Trends'.

LONGER TIME SERIES AND FURTHER DETAILS

Details of the compilation of the XCLI index can be found in An Experimental Composite Leading Indicator of Australian Economic Activity, (ABS Cat. no. 1347.0), released in June 1993, and in the feature articles published in Australian Economic Indicators (ABS Cat. no. 1350.0) in August and October 1992 and May 1993.

Longer time series of the data presented in this XCLI article are now available on AUSSTATS. For further information about these statistics please contact Jo Jackson on Canberra (02) 6252 6114.

XCLI REVIEW

The XCLI has not been performing well recently as indicators of turning points in the Australian business cycle. The lead time between movements in the XCLI, and the GDP business cycle have been steadily declining. The ABS is currently reviewing the components and compilation methodology of XCLI. The review is expected to be finished at the end of 2002. During the review period, the current XCLI publication will continue. Any submission from parties interested in the XCLI should be received by 28 June 2002 and sent to:

The Editor
Australian Economic Indicators
4N316
Australian Bureau Of Statistics
PO Box 10
Belconnen, ACT, 2616

ENDNOTE

The unit of measurement varies between XCLI components. For example, the real interest rate is measured as a percentage, job vacancies as a number, United States GDP in dollar terms and the trade factor is measured in index number form. Each component is therefore standardised to make its contribution to the XCLI comparable.

The standardisation procedure gives each XCLI component an average value of 1. The variation of each component about its average is also standardised, so that the average deviation also equals 1. Chain volume GDP (the reference series) is also standardised in the same way.

Graphs 1 and 3 use the standardised forms of the XCLI, GDP and non-farm GDP series. The graphs show the deviation of the standardised series from their respective historical long-term trends. Because of the standardisation procedure, the deviation measure has no particular unit (i.e. it is not measured in dollars, or percentage change, or any other real world unit).

This page last updated 8 December 2006

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